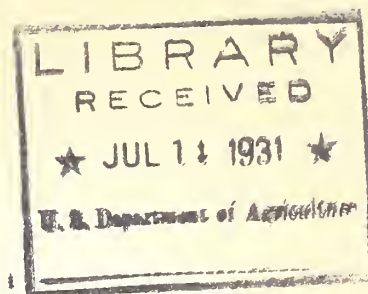


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STEM RUST AND BARBERRY NEWS

Issued by

Division of Barberry Eradication.

Volume II

July 1, 1931

Number 5

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Bureau of Plant Industry
U. S. Department of Agriculture

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DEVELOPING THE STEM RUST CONTROL PROGRAM

By

W. L. Popham, Senior Pathologist.

The informational phase of the Barberry Eradication project is comparable in many respects to numerous other extension programs being conducted over a wide area. Each program of this nature, depending for its success upon the proportion of the general public influenced, is based upon entirely different facts but all such projects may usually be organized upon the basis of the formula, Attention, Interest, Desire, Action, Satisfaction.

To develop a successful extension program in methods of stem rust control it was first necessary to attract the attention of many people in the barberry eradication area to the serious nature of this disease of small grains. This was accomplished to some extent at the beginning of the project by area-wide publicity, including news articles, movie films, posters, lectures, etc. With the attention of many farmers and business men focused upon rust and the damage resulting from it, their interest was further aroused by demonstrating that the serious annual losses to grain growers caused by this disease could be reduced. The next step was to create a desire on the part of grain growers to attempt control measures. Carefully prepared economic data comparing the yield, quality, and market price of grain damaged by rust with the same qualities of rust-free grain is one effective means that has been employed to produce the desire on the part of property owners to take some definite action toward controlling the disease. The satisfaction of grain growers and others interested in the production of cereal crops is being brought about through a reduction in the number and severity of stem rust epidemics.

This same plan of organization which, in the above discussion, has been applied to the entire area is now being employed in a more intensive manner in counties and local communities. To look at the

situation in another way, we have reached the action stage so far as the general public is concerned. Our informational efforts are being expended in an attempt to obtain more concerted action on the part of property owners to rid their community of barberry bushes. Of course we cannot overlook the fact that only a small percentage of the public has reached this stage, and we can not lessen our efforts to influence the others.

There are many interpretations of the above formula that might be applied to stem rust control, and there are many agencies that may be employed to develop each step of the project. Whether it is a program extending over a period of years or simply a form letter, the type of approach or development differs very little. The same steps involved in the organization of the project as a whole may be applied to circular letters, news articles, short reports, and illustrative materials.

To carry out this idea in the preparation of a circular letter or a report, the opening paragraph should be designed to attract the attention of the reader. We cannot attempt to compete with commercial advertising by beginning with some startling statement of a propaganda nature, but there are many interesting ideas and comparisons which relate strictly to facts regarding the subject being discussed that will serve to attract the person who chances to open the letter or report. To me the following statements would appear to serve this purpose, "It has been demonstrated to the world that malarial fever can be controlled by destroying the breeding places of the disease-spreading mosquito. Likewise, the spread of black stem rust, a serious disease of oats, wheat, barley, and rye, can be checked by the destruction of its host plant, the common barberry" or "The United States produced approximately 325,000,000 bushels of spring wheat in 1950. More than three-fourths of this amount, or 275,000,000 bushels, was grown in thirteen of the Upper Mississippi Valley States." These statements each develop a complete thought, and they are apt to induce the reader to hesitate long enough to find out what is contained in the remainder of the letter. The first statement is a comparison which immediately calls to the reader's attention the fact that the life cycle of stem rust is not such an unusual thing. At the same time it avoids any reference to the complicated life history of either malaria or the rust fungus. The second statement drives home the importance of spring wheat in the area in which barberry eradication is being conducted as a means of reducing the number of stem rust epidemics.

Following the opening statements, the body of the letter or report should relate facts that are of local or immediate interest to the reader. These facts should be related in a simple, straight-forward manner which will carry the conviction that the project under way is extremely worth while, and one entirely worthy of the property owner's attention and support. An attempt should be made to create a desire on the part of the property owner to take an active interest in the program.

The next step is to clearly outline something the reader can do, some action he can take, which will definitely make him of service to the project. This service may be any one of several things, such as reporting bushes, reporting rust, inspecting his own property for barberry bushes, giving space for a demonstration, etc. The immediate satisfaction realized by the people who take an active part in the work, in many cases, may represent nothing more than the fact that they have become thoroughly acquainted with the program, and the way it is being conducted. The ultimate satisfaction, of course, would be brought about through the successful completion of the program resulting in the control of stem rust.

Summary

The formula Attention, Interest, Desire, Action, and Satisfaction furnishes a sound basis on which to develop an extension program. The same formula is applicable whether it relates directly to an extensive project, or to one specific job fulfilling a minor need in connection with the development of the entire program.

To bring about the adoption of a new practice, or to sell an idea through a circular or letter:

First, attract the attention of the reader.

Second, interest him in the program you are discussing.

Third, create a desire on his part to be of service to the project.

Fourth, clearly outline the exact steps he should take to be of service.

Fifth, when he renders a service make sure that his efforts are recognized.

- A. Make all statements positive, simple, convincing
- B. Make subject matter brief but entirely clear
- C. Select adjectives carefully, in order to give each statement the proper emphasis
- D. State facts in straight-forward, natural manner, and let the reader be the judge as to effectiveness, value, etc.
- E. Use illustrations wherever and whenever possible
- F. Avoid details (excepting when definite instructions are being given for the reader to follow in performing his part of the program)
- G. Avoid any statements that will lead the reader to believe you expect criticism or opposition
- H. Avoid change of tense.
- I. You are always assisting the property owner rather than he assisting you

Sentence structure, selection of words, and general appearance of the circular will have a direct bearing upon the reception given it by the reader.

EPIDEMIOLOGY

(Reported by Miss Laura Hamilton)

On June 18 the first pustules of stem rust began to appear on wheat and barley in eastern South Dakota and southern Minnesota. This is probably a few days later than the average date for widespread primary infection, and is five or six days later than rust appeared last year. In northwestern Iowa on the 19th, and in south central Minnesota on the 20th, stem rust was observed on oats also. In any of this area, however, according to reports received so far, a search of 10 or 20 minutes was required to find the very small pustules that were breaking out at that time, and in some fields no rust was found in that length of time. The extent of the infected area had not yet been determined, but rusted fields were reported near the Twin Cities in Minnesota and as far north

as Redfield in South Dakota. Wheat, oats, and barley ranged in development from joint to milk. On June 15 Butler and Ukkelberg were unable to find stem rust in the Yankton area or in northernmost Nebraska, indicating that this section did not receive inoculum until considerably later than the remainder of eastern Nebraska.

Previous to the appearance of primary infection on the 18th, rust had spread from barberries to grains in Minnesota and Wisconsin.

The first uredinial infection was observed on June 10, or later, in southwestern Ohio, southern Indiana, southern and northwestern Illinois, and in Iowa. In southeastern Iowa, according to Starr on June 18, 100 per cent of the plants were infected in some fields, and while only a trace of rust was the rule, some culms were heavily infected.

Inoculations with collections of Puccinia graminis that are coming in from the field have been made as rapidly as possible, and are now fairly well up to date, according to Dr. Cotter. Mr. Hines recently identified 39 collections of wheat stem rust from Mexico, most of which were form 38. Form 49 was found in six collections, however, all of them from the Coahuila area, to which form 49 usually appears to be restricted.

Dr. Stakman returned to St. Paul on June 19. While officially on leave until July 1, he already is busy in an advisory capacity. (June 22).

EASTERN REGION

Ohio - 8 East Broad St., Columbus - Harry Atwood

A sprinkling of black stem rust has been observed in many of the wheat fields examined; infection being more general and severe in counties where a second survey for barberries has not been conducted. Recently a field near Milford Center in Union County was observed. It was estimated that this particular field of wheat had at that time a severity of 5% and a prevalence of 80% of black stem rust infection. Common barberries are known to be growing in this vicinity.

No stem rust has been observed to date on oats or barley. During the past week black stem rust was observed on Blue Grass at

West Liberty, Champaign County and at Sidney, Shelby County, near infected barberries.

Accia were found on Rhamnus lanceolata in Harrison Township, Champaign County. Crown rust was just starting on oats in a field across the road, in a corner nearest the Rhamnus lanceolata.

The field men report continued cooperation from farmers in the territory being surveyed. Recently a farmer approached two of the boys at field headquarters and asked whether they had surveyed his farm. He stated that he had been troubled with black stem rust on his wheat. He said that he owned a woodlot near the infected field. This woodlot has considerable underbrush and he is anxious that a careful survey of this area be made in order that no barberry bushes be overlooked.

On June 16, nine men began work on barberry eradication in Ohio. Four of them are beginners on barberry work. The others have had from one to five season's experience.

Our training school for barberry scouts was held on June 16 and 17 at Bellefontaine, near the territory in which survey activities are in progress.

On the morning of June 16, different members of the group discussed problems relative to our job. The following subjects were under consideration: The responsibility of the barberry scout to the community in which he is working; field news; the making of barberry location records; maintaining efficiency in survey. A brief discussion followed the presentation of each subject.

In the afternoon, Dr. Stover, of the Plant Pathology Department of Ohio State University, explained the different stages of black stem rust, using microscope slides and the blackboard for diagrams.

Mr. Fred Connolly, a farmer near Zanesfield, Logan County, appeared on the program and related in a very interesting way his experience with common barberries and black stem rust.

On the evening of June 16 Mr. Ross M. Work, Logan County Agricultural Agent, outlined extension work being carried on in the County. He also assured us that we might expect excellent cooperation from farmers of Logan County and from his office.

A great deal of the time available on Wednesday was spent in treating an escaped area of barberries near Sidney. There on a wooded hillside the barberry agents had the opportunity of seeing and treating barberries and seedlings, growing under shrubbery, along fence rows, at the base of trees and on steep slopes. The experienced men were detailed to explain the methods of scouting and treating, and to observe and supervise the treating of a definite area, by the beginners. One ton of salt was used by the scouts in the treating of this area. (June 22)

Indiana - Purdue Experiment Station Annex, West Lafayette - W.E. Leer

The field men completed the systematic survey of Bartholomew County on June 15. The work in this County was started July 1, 1930.

On June 16, the field men began work in an area of escaped bushes near Heltonsville in Lawrence County. They hope to complete the work in this area in a week or ten days. As soon as the work is completed in this area, the men will go to Attica in Fountain County and work in an area of escaped bushes there.

As a result of a lead received during the spring meeting of the Indiana Academy of Science at Bedford, an area of escaped bushes was located along the Wabash River in Carroll County on June 15. This area seems to be centered around an abandoned town. It seems that many years ago a chair factory and several houses stood at this location. Only the oldest citizens in the community are able to recall the location of this abandoned town.

As a result of a lead secured at the Indiana State Fair last year, an area of escaped barberries was found near Lincolnville in Wabash County and the bushes destroyed. Wabash County seems to be a favorable one for escaped barberries.

The annual training school for field men will be held June 29. At this time the crews will be formed for systematic survey during the summer. The usual program is planned for the day. (June 22)

Illinois - Post Office Building, Urbana - Robert W. Bills

The summer force of barberry eradication agents reported for duty on June 22. The day was spent in discussions of survey methods,

epidemiology, history, records, and personnel problems. The new men had an opportunity to scout for barberry bushes in Crystal Lake Park, Urbana.

Mr. F. C. Meier, Principal Pathologist in Charge of the Division of Barberry Eradication, spent the day with us and assisted in the preparation of the scouts.

Dr. G. H. Dungan, Associate Professor of Agronomy, University of Illinois, addressed the group,

The Illinois Department of Agriculture will furnish twelve employees. Four have been working since April. Eight will report for duty on June 26.

Stem rust has been found in traces in central Illinois on oats and barley. It has been found on winter wheat in Ogle County, northern Illinois, since June 13.

Winter wheat is being harvested in the St. Louis area. Hessian fly injury has been reported in that region. (June 24).

Michigan - Michigan State College, East Lansing - Francis B. Powers

Eradication is progressing nicely in Peninsula Township of Grand Traverse County. Sixteen hundred and forty seven bushes have been removed in Grand Traverse County. This brings the total in Michigan since May 1 to 4,005. The men in the field have not found rust on grain. Mr. McIntyre reported one large barberry bush with 100 per cent of the leaves heavily rusted. The Leader investigated an area in Meridian Township, Ingham County, where wheat, rye, and quack grass were badly infected with stem rust last summer. This spring 500 yards northwest of the area 32 common barberries having a large amount of unopened accia were removed. In some college experiment plots in this area wheat, oats, and rye are being grown.

No stem rust has been found on the rye or oats. Leaf rust has been found on the rye and wheat and two pustules of stem rust on the wheat. The quack grass is apparently free from stem rust and a near-by field of oats is entirely free from it to date. The rye is tall and has completed flowering. The wheat is flowering, and the oats is just heading. (June 25).

Wisconsin - State Capitol Annex, Madison - Vern O. Taylor

On June 15, six squads of field men began work bringing the total number of crews up to seven. They are located in Ozaukee, Dodge, Iowa, Grant, and Dane Counties with two squads working in both Grant and Dane Counties.

The State appropriation in Wisconsin has been raised from that of \$1,250 to \$3,000 and two State cars are also being used without rental charges. The increase in direct aid has made it possible to place a crew in the field on State funds.

The crew working in Iowa County has encountered difficult territory along the Wisconsin River. This country is covered with dense underbrush and the topography is rugged. Bushes are found less frequently but have been reported growing on islands in the river.

The Black Earth crews have found only in the neighborhood of 20 bushes working directly north of that village, and it is hoped that we can finish the second survey in that area before the crews discontinue the work this season.

The squads in Dodge and Grant Counties started work in known areas of escaped bushes and spread five tons of salt the first week of survey. All squads finding bushes have reported stem rust and leaf rust being found on rye and wheat with one report of crown rust on oats.

The Leader worked a half day each with the Black Earth and Iowa County crews. These crews are both working the country along the Wisconsin River as last year's drought left these areas in excellent condition to scout.

The present weather conditions are favorable for rust, and, if they continue, rust spreads from barberries should develop.
(June 22)

WESTERN REGION

Minnesota - University Farm, St. Paul - Leonard W. Melander

On June 16, seven more men were put on the intensive survey in

Dakota County. On July 1 crews of six men each will be assigned to Rice and Goodhue Counties. Conditions for survey during the spring in Minnesota are not as favorable as summer and fall. The latter season is by far the best for finding barberries. For this reason we have reduced the size of the summer crew to enable us to have a larger one in the fall.

The 4-H club camp season is on in full swing. One of the new features in connection with the barberry information work is a game in which darts are used. The background is a "insulite" silhouette of a barberry bush. The bull's-eye is an eighteen-inch square which is divided into four squares. These squares are labeled and have colored illustrations as follows: (1) Saw-toothed edged leaves; (2) berries in bunches; (3) three to five spines in groups on the stem; and (4) yellow underbark and roots. Before the boys and girls are allowed to play this game they are required to qualify which means that they must know how to identify a common barberry. Mr. Ingwalsen, who is in charge of this work in Minnesota, reports that the children are very anxious to qualify so that they may be permitted to play the game.

Stem rust has made its appearance on grains and grasses. *Uredinia* were found near barberry on Agropyron repens on June 11. *Uredinia* on barley and wheat were found away from known locations of barberry on June 19. Both of these finds were in Dakota County. The amount of infection in the latter was merely a trace. (June 23).

Iowa - Morrill Hall, Iowa State College, Ames - D. R. Shepherd

A two-day school of instruction was held for the Iowa field force on June 16 and 17, previous to their departure for the temporary headquarters in the field. The two days were devoted to instruction in methods of survey, fiscal matters, and informational methods. The following Iowa State College staff members appeared on our program during this school of instruction: Dr. I. E. Melhus, Head of the Botany Department; Mr. P. C. Taff, Assistant Director of the Extension; Dr. R. H. Porter, Extension pathologist; Professor H. D. Hughes, Farm Crops and Soils and Dr. Ada Hayden, Professor of Botany.

Twenty-four men departed for their field stations on Thursday morning of last week. Six men will be stationed in Woodbury County; four in Plymouth County; four in Webster County; four in Linn County and four in Carroll County. Robert C. Cassell is the Assistant Leader again this year and will spend his full time in the field working with the men. Robert G. Brown, who is majoring in Plant Pathology here at

Iowa State College, will serve as Utility man, taking care of part of the informational work, making rust observations and doing survey work when there is no work of this type to keep him busy.

The first stem rust on cereals in Iowa was found by the Leader in plots here at the college on June 18. A letter from Mr. Herman Starr, who was driving through Iowa on that day, indicates that he also found rust in Jefferson, Henry, Lee and Wapello Counties. Stem rust was reported on the 19th by the field men who are stationed at Le Mars. This was found on barley in the vicinity of Struble, Iowa. During the past two weeks we have had abundant rainfall in most sections of Iowa, and, in general, the weather has been quite favorable for rust development. Rust probably will develop rapidly in the southern part of the State within the next ten days. The barberries that have been found in Linn County have shown a very heavy social infection. With this exception, however, the infection on barberries has been very light. In the western part of the State, especially in Woodbury County, we have been able to find only a trace of infection in the barberries that have been taken out.

The Leader enjoyed a brief visit last week with Mr. Herman Starr, who was on his way into Missouri to make stem rust observations. Leon J. Tyler, who has been teaching in Louisiana during the past school year, stopped over at Ames for a day. He was enroute to St. Paul where he was to begin his work with the Barberry Eradication Division on rust observation work. (June 20)

District No. 1 - State College Station, Fargo, N. Dak. -G. C. Mayoue

District No. 2 - State College Station, Brookings, S. Dak.-R. O. Bulger

Sixteen men, armed with weapons for barberry warfare, left Brookings, S. Dak., Wednesday afternoon, June 17, to begin the survey for the elusive bush in Hyde, Hand, Faulk and Edmunds Counties. On Tuesday afternoon of the same week, a like number of men similarly equipped, left Lincoln, Nebraska, for work in Greeley, Valley, Sherman and Polk Counties.

Conferences were held in both States before the men left for the field. State men cooperated by helping with the general instructions and by giving inspirational talks. In Nebraska W. H. Brokaw, Director of the Extension Service, took a very active part in the con-

ference. Dr. G. L. Peltier, Head of the Botany Department; Dr. F. D. Keim, Head of the Agronomy Department; and Mr. Paul Stewart, Extension Agronomist, all gave talks and instructed the men relative to various phases of agriculture.

In South Dakota, talks were given by C. Larsen, Dean of Agriculture; A. E. Anderson, Director of the Extension Service; and Dr. W. L. Miller, Head of the Botany Department. Instruction was given by Prof. M. W. Fowlds, Weed Specialist; Prof. P. L. Keene, Horticultural Department; and Dr. K. H. Klages, Department of Agronomy.

Informational work during the month of June consisted of instruction in stem rust and the presentation of the "Trek of the Common Barberberry" playlet before 10 different club camps in South Dakota. The playlet seems to have been well received over the State. The boys and girls selected for the cast at each camp showed considerable talent and did very well considering the time available for practice. Club camp work in Nebraska will be carried on during July.

Stem rust was first reported on June 8 in South Dakota. Orange leaf rust is fairly general and leaf rust of rye has been found in a few fields. In Nebraska a trace of stem rust has been found two-thirds of the way across the State and leaf rust is fairly plentiful.

Crop conditions in Nebraska are generally good. In South Dakota drought during the latter part of May and the first part of June caused some damage. Winter rye and wheat are severely damaged, but spring grains have recovered some with recent rains. (June 19)

District No. 3 - Agricultural College, Fort Collins, Colo. -E. A. Lungren

In Colorado the field forces are now working on second survey of Pueblo and Fremont Counties. The first half of June some ten properties of common barberries were found in east Pueblo. The city of Pueblo is the second largest in the State of Colorado, and apparently we are going to find quite a large number of barberries in this city. On the east is the Arkansas Valley, which is a rich irrigated agricultural valley. A considerable amount of timber and shrubby grows in the valley. Pueblo County is one of the largest counties in the State, and apparently it will take one squad all season to clean the county.

In Fremont County there are four men scouting over the orchard district west of Canon City. Several hundred escaped barberries have been eradicated this month. The area is very extensive, and barberries

have been found in practically every orchard scouted. This area is one of the largest escaped areas found in this State.

The weather has been hot and dry. No infection has been found on barberries nor has any stem rust been found on grain. A slight trace of leaf rust was found east of Pueblo in the Arkansas Valley.

Western Nebraska. Second survey is progressing in Cheyenne County. A large bush was found near Sidney but it was not infected. It was placed on demonstration in Sidney, and the boys also used the bush and a demonstration at the farmers' picnic.

Arrangements have been made for a demonstration at the boys and girls club camp June 6. We also plan to exhibit at the Cheyenne County Fair this fall.

The weather has been hot and dry in this section of Western Nebraska, and a large amount of the grain is drying. No stem rust could be found to June 20. Barely a trace of leaf rust was present.

Wyoming. Second survey of Converse County which was started last year was completed on June 20. One bush was found on one property in Douglas, Wyoming. The squad of two men working this territory moved into Niobrara County to start second survey work.

Arrangements have been made for demonstrations at boys and girls club camps in four counties.

Work in Campbell County is progressing rapidly due to so large an area of grazing land in the southern part. No stem rust has been found in Wyoming to date. (June 22)

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